

## PATENT COOPERATION TREATY

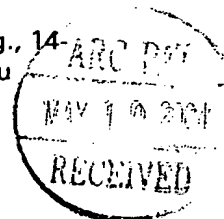
PCT

**NOTIFICATION CONCERNING  
THE FILING OF AMENDMENTS OF THE CLAIMS**  
(PCT Administrative Instructions, Section 417)

From the INTERNATIONAL BUREAU

To:

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<b>Date of mailing</b> (day/month/year) 03 May 2004 (03.05.2004)	<b>IMPORTANT NOTIFICATION</b>
<b>Applicant's or agent's file reference</b> PCT102	
<b>International application No.</b> PCT/JP2003/014098	<b>International filing date</b> (day/month/year) 05 November 2003 (05.11.2003)
<b>Applicant</b> SHARP KABUSHIKI KAISHA et al	

1. The applicant is hereby notified that amendments to the claims under Article 19 were received by the International Bureau on:

27 April 2004 (27.04.2004)

2. This date is within the time limit under Rule 46.1.

Consequently, the international publication of the international application will contain the amended claims according to Rule 48.2(f), (h) and (i).

3. The applicant is reminded that the international application (description, claims and drawings) may be amended during the international preliminary examination under Chapter II, according to Article 34, and in any case, before each of the designated Offices, according to Article 28 and Rule 52, or before each of the elected Offices, according to Article 41 and Rule 78.

<p><b>The International Bureau of WIPO</b> 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. (41-22) 338.70.10</p>	<p>Authorised officer</p> <p><i>Akiko KOYAMA</i> (Fax 338 7010)</p> <p>Telephone No. (41-22) 338 8023</p>
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## CLAIMS

1. (amended) An optical disk drive device, comprising:

at least two optical pickups that are arranged so as to reproduce the  
5 same surface of an optical disk;

a guiding means for each optical pickup for moving the optical  
pickups in the radial direction of an optical disk;

a tilt detecting means provided on at least one of the optical pickups  
for detecting the tilt of the optical disk; and

10 a tilt correcting means, provided on at least the other of the optical  
pickups for adjusting the tilt of a laser light axis from the optical pickup with  
respect to the optical disk, in accordance with a detection result of the tilt  
detecting means;

wherein detection of the tilt of the optical disk is performed by the tilt  
15 detecting means on the one of the optical pickups, and recording or  
reproduction of the optical disk, and adjustment of the tilt of the laser light  
axis from the optical pickup by the tilt correcting means is performed on the  
other of the optical pickups.

20 2. The optical disk drive device according to claim 1,

wherein the position of the guide means of the other optical pickup is  
adjusted and fixed with respect to a disk receiving surface of a turntable,  
such that the tilt of the laser light axis from the other optical pickup on  
which the tilt detecting means is provided is 0 (zero) with respect to the disk  
25 receiving surface of the turntable onto which the optical disk is loaded.

3. The optical disk drive device according to claim 1,

wherein the optical pickups are moved in the radial direction of the  
optical disk by the respective guiding means,

30 wherein the one optical pickup that is provided with the tilt detecting

means is moved ahead of the other optical pickup that is provided with the

tilt correcting means; and

wherein in the same position in the radial direction of the optical disk, detection of the tilt of the optical disk by the tilt detecting means of the one optical pickup is performed ahead of adjustment of the tilt of the laser light  
5 axis from the other optical pickup by the tilt correcting means.

4. The optical disk drive device according to claim 1,

wherein the one optical pickup that is provided with the tilt detecting means is moved in the radial direction of the optical disk by the guiding  
10 means to detect the tilt of the optical disk by the tilt detecting means while initial settings relating to recording or reproduction of the optical disk are performed on the other optical pickup side that is provided with the tilt correcting means.

15 5. The optical disk drive device according to claim 4, further comprising:  
a memory for storing at least tilt information about the tilt of the optical disk that is detected by the tilt detecting means.

6. The optical disk drive device according to claim 1 or claim 3, further  
20 comprising:

a memory for storing tilt information about the tilt of the optical disk that is detected by the tilt detecting means, and radial position information about the radial position of the optical disk in which at least the one optical pickup is moved in the radial direction of the optical disk by the guiding  
25 means;

wherein at least during recording or reproduction of the optical disk, the tilt information and the radial position information of the optical disk are stored and held in the memory.

30 7. A method for correcting tilt of an optical pickup, the method

comprising:

a step of performing recording or reproduction of an optical disk by a first optical pickup while moving the first optical pickup in the radial direction of the optical disk, and of detecting the position of the first optical pickup in the radial direction of the optical disk;

a step of moving a second optical pickup to the position, or the vicinity of the position, of the first optical pickup that was detected, and of detecting the tilt of the optical disk on the side of the second optical pickup; and

a step of adjusting the tilt of a laser light axis from the first optical pickup, in accordance with the tilt of the optical disk that was detected.